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Growth and impact of scholarly contributions for SP University: A Bibliometric Analysis

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ABSTRACT:

Qualitative analysis of bibliographic datasets becomes advantageous to individuals and institutions since the high weightage of 'research' enunciated in assessment ranking or gradation framework. Out of the various existing methods 'bibliometric methods' applied in the current study for quantitative examination of research output to measure productivity and performance. A total of 1690 Bibliographic records consulted of Sardar Patel University (SPU) published during the year 2009-2018 retrieved from the Scopus indexing database. To validate the objectives i.e. to determine chronological growth, authorship pattern, core sources for research communication, and influence of productivity by citations received, various indicators, and indices and bibliometric laws i.e. RGR, Dt, CAI, DC, Bradford's Law of distributions, and more have been applied appropriately. Furthermore, software of 'MS-Excel' and 'bibliometrix' & 'biblioshiny' of R-Package software applied for detailed and accurate analysis. Evaluated data figured out Average yearly contribution 169 research however accounted Mean RGR (P) '0.25'; Mean Dt (P) '3.52 reveals inconsistent growth of research output. Rate of DC '0.98' and the highest '51.30%' productivity for 'multi authorship' indicates a higher rate of collaborative research work. Total '36 core sources' identified which are highly relevant to 'applied / pure science' discipline. A total of 15153 citations were received for research occurrence in the span with an average of 8.97 ACPP where mean RGR (C) '0.19' and Mean Dt (C) '7.06' of citations should be the matter of anxiety for SPU and individual scholars. SPU has to make more effort to promote research and create quality culture, attention of developing better policies to enhance and enrich the research performance of individuals.

KEYWORDS:

Bibliometric, Citation Analysis, Authorship Pattern, Bradford's Law, Sardar Patel University, Research Productivity

1. INTRODUCTION

Qualitative research becomes advantageous for the individuals, institutions societies, and nations; upsurge wealth of knowledge and harvest intellectual property which will be used for future generations. Evaluation of existing research is considered as the prime responsibility of every education institutes. Various methods have been invented and used to evaluate the research productivity where one of the most popular and widely accepted methods is bibliometric Analysis; The term bibliometric coined by Pritchard expressed it as the "applications of mathematical methods to books and other communications media (Pritchard, 1969). It became a dominating tool for measuring the value of research performance by applying the various indicators and metrics, bibliometric analysis provides the quantitative scenario of research work carried out. Numbers of bibliometric studies performed to quantitative evaluation of research productivity of institutions with the dataset acquired from Scopus. Many researchers (Ram 2014; Banshal, Uddin, and Singh 2015; González, La Hoz, and Beltrán 2019; Jelvehgaran Esfahani, Tavasoli, and Jabbarzadeh 2019) has applied bibliometric methods in evaluation to measure the productivity and performance in the manner of quantitative examination of research output of discipline's, institution's, journal's or individual productivity.

Sardar Patel University established in year 1955; offers various undergraduate postgraduate and doctoral Programs; a total of 27 departments with 11 faculties running under university in addition to 148 colleges affiliated. The SPU focused more on research and established various research centers ("Www.Spuvvn.Edu," n.d.). The high weightage of research enunciated in the assessment ranking or gradation framework. The National Assessment and Accreditation Council, India (NAAC) ("NAAC - Home," n.d.), and National Institutional Ranking Framework (NIRF) ("NIRF - Univ," n.d.) recognized the highest 25% of total weightage allocated for research Innovation and extension. The university accredited by NAAC in 3 cycles, 4 stars in the 1st cycle of 2001, B Grade in 2nd cycle of 2011, and accredited with A grade in 2016 ("Hei_dashboard | Accreditation-Status at NAAC," n.d.).

2. REVIEW OF EARLIER STUDY OF BIBLIOMETRIC

The study conducted by (Chun, 2009) to revealed publication trends for Southeast Asian chemical engineering (CE) scholars and analyzed the bibliographic dataset retrieved from Scopus from 1996-2008. In Analysis 'Singapore' captured the top position in the number of journal articles (2699) followed by 'Malaysia' with (848). Study concluded with the findings

that the most favored source of publication recognized journals published from the 'USA' included top-ranked chemistry and material science journals and journal publications of 'Elsevier'. (Aswathy & Gopikuttan, 2013) evaluated the publication productivity and analyzed 1068 publications collected from Web of Science (WoS) and study revealed that articles contributed the most in comparison to other forms of publications; the most research carried out in collaboration, multi-authorship productivity found in all discipline; The findings indicated that 'The University of Kerala' has significant international recognitions in research performance. (Khan and Ahangar, 2015) performed evaluated study to count the research productivity of Jammu Medical College. Study evaluated 514 publications, published during the 1973 to 2011 by the Scholars of Government Medical College Jammu and indexed in Scopus. Result revealed that the Department of General Medicine is highly productive department with 97 publication and contributed 18.87%. major research work carried out jointly as 470 publications counted multi authors contributed 91.44% of total research. Researcher concluded that the evaluation signifies the need for interdisciplinary research. (Bapte & Gedam, 2018) analyzed the research of 'Sant Gadge Baba Amravati University' where a total of 1130 research publications retrieved from 'Scopus'. Application of various indices matrix and indices figures out the result that 83.98% of research produced between 2007 and 2017 and 16.02% produced from 1996 to 2016. A rate of 0.96 the degree of collaboration (DC) indicates the collaborative trend. The researchers concluded progressive record in collaborative research, however, the collaboration was limited to regionally and essential to moves towards international collaborative work. (Yang & Lee, 2018) conducted the study to differentiate the impact and effect of the research standards followed by Korean Universities. They recognized 25 major research assessment standards applied to cast-off sample for 195 professors LIS department affiliated with 35 Korean Universities. Various bibliometric indices applied for comparative measurement. The analysis figured out that the trends of publications collectively increase for internationally indexed journals. Moreover, the standards of research assessment followed by universities nearby similar hence the motto of quantifying the quality of research conceptually not much effective. (Patel & Bhatt, 2019b) carried out a study of Gujarat University faculty productivity for 10 years based on a total of 1248 publications indexed in 'Scopus' database. The analysis figured out 'journals' as the most preferred publication form with 81.97% coverage; the tremendous growth noted where the number of publications increased nearby 2.14 times. Impact of research visible in citation analysis, 77.72% of publications cited by single or more times. (Nishavathi & Jeyshankar, 2020) examined 19622 records with scientometric technique to recognise the international

scientific collaboration of All India Institute of Medical Sciences (AIIMS). The analysis figured out, 0.95 mean for degree of collaboration however, international collaboration accounted quite lower with 14.67%. USA recognized as the most collaborative countries with the Degree Centrality rate of 54 and subsequently followed by UK with 41 Degree Centrality (Dc) rate. The study concludes with remarks to encourage scholars for international collaboration with enhanced qualitative research performance. (Derviş, 2020) evaluated Open-source software utilized to determine the bibliometric analysis output. 1155 data record grabbed from 'Web of Science' (WoS) Clarivate Analytics to detect the productivity of 'Graphene' research. The findings revealed that scientific research of 'graphene' within 'nanotechnology' increases gradually however the 'Graphene' not only is related to 'engineering', even related to 'medical technology'. The study emphasized the conclusion that the R-package and 'Bibliometrix' utilized vastly in the last few years to analyze the bibliographical data.

3. OBJECTIVE OF STUDY

The major objectives of study are as under,

- To account chronological growth of SPU research productivity
- To estimate the authorship pattern and prolific authors
- To recognize the core sources for research communication
- To identify the influence of productivity by citations received

4. RESEARCH METHODOLOGY

The more precise evaluation of 'research' would be attained in the ranking carried out for the academic (Norris & Oppenheim, 2010). Counting the number of research publications is still the most common method to quantify research publication productivity, where the various indicators and indices have often been applied to evaluate the quality and impact of research (Cronin & Meho, 2006) Bibliometric techniques used as the research method; it as the quantitative analysis application for the bibliographical details and references of literature body (Hawkins, 1977). A total of 1690 Bibliographic records retrieved from the Scopus; an abstract and indexing database of research publications published in popular and peer-reviewed journals produced by the Elsevier Co. (Burnham, 2006) and it's increasingly used in academic papers to execute the bibliographic analysis (Zhu & Liu, 2020) The search string (AF-ID ("Sardar

Patel University" 60013979)) used and found 4056 records affiliated with SPU; year-wise refining process limited results to a total of 1690 records during the period 2009-2018, were finally considered for the analysis. visualization of analyzed output is more important to convey the findings and ease to understand the data (Patel & Bhatt, 2019a). Software packages of 'RStudio' i.e. 'bibliometrix' & 'biblioshiny' developed by Professor Massimo Aria in 2017 (Aria & Cuccurullo, 2017; Xie, Zhang, Wu, & Lv, 2020) which are one of the extensively accepted tools for data science worldwide (Hadley, 2020; Verzani, 2012) and the 'MS-Excel' has been applied accordingly to produced data and results represented in tabular and graphical formats for the more accurate and dynamic result of the studied data.

5. ANALYSIS AND INTERPRETATION

5. 1 Growth of research performance

Table 1: Relative Growth Rate and Doubling Time of Publications

Year	RP	Rate (%)	CRP	$Loge^{1(P)}$	$Loge^{2(P)}$	RGR (P)	Mean RGR(P)	Dt	Mean Dt (P)
2009	134	7.93	134	-	4.90	-		-	
2010	153	9.05	287	4.90	5.66	0.76		0.91	
2011	189	11.18	476	5.66	6.17	0.51	0.38	1.37	1.35
2012	176	10.41	652	6.17	6.48	0.31		2.20	
2013	232	13.73	884	6.48	6.78	0.30		2.28	
2014	186	11.01	1070	6.78	6.98	0.19		3.63	
2015	151	8.93	1221	6.98	7.11	0.13		5.25	
2016	165	9.76	1386	7.11	7.23	0.13	0.13	5.47	5.68
2017	157	9.29	1543	7.23	7.34	0.11		6.46	
2018	147	8.70	1690	7.34	7.43	0.09		7.62	
Total	1690	100	-	-	-	-	-	-	-

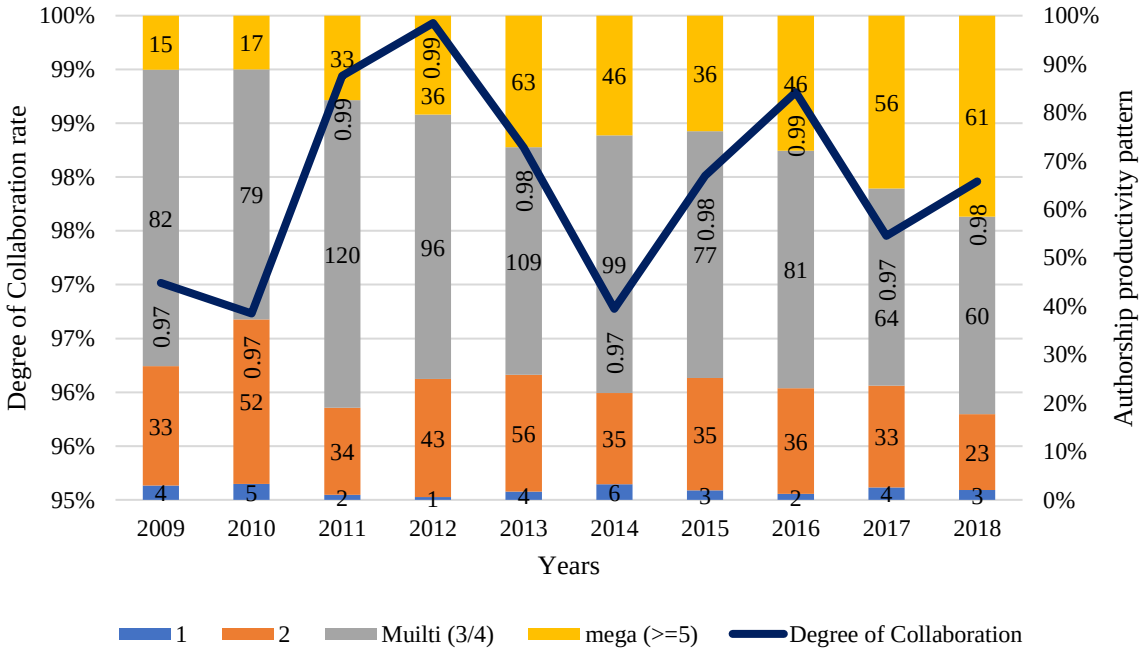
RP: Research Publications; CRP: Cumulative of Research Publications RGR: Relative Growth Rate; Dt: Doubling Time; (P); Publications

A total of 1690 research publications examined as shown in Table 1. Steady growth for the first six years swiftly falls in the last four years observed in chronological assessment; The most research occurrence 232 (13.73%) in the year 2013. Years 2011, 2012, 2013 & 2014 contributed ≥10.41% ± 13.73%≤. The formula's applied to calculate Relative Growth Rate (RGR), 'the increment of the number of articles per unit of time' and Doubling Time (Dt), 'the period to research occurrence to double value' suggested by (M. Mahapatra, 1985). The RGR

(P) signposts the collapsed from the 0.76 for the year to 0.09 for the year 2018; The Mean RGR (P) calculated 0.25 however the in the RGR (P) 0.38 for initial five years of 2009 to 2013 was decline to 0.13 in last five years destructive the overall mean RGR (P). Doubling Time (Dt) communicated over the span from ≥0.91 ± 7.62%≤. Dt(P) for 2009 to 2013 was 1.35 inspirational however the slumped 5.68 Dt (P) for the period of 2014-2018 detriment the overall Mean Dt (P) measured 3.52.

5.2 Authorship pattern and most prolific author

Figure 1: Authorship Pattern and Degree of Collaboration



Evaluation of the authorship pattern recognized as significant practice in the bibliometric study reflects communication patterns, productivity, and collaboration among the researchers; it beneficial to identify their strength in communication among research scholars. (Ding, Foo, & Chowdhury, 1998; Hussain & Fatima, 2010). It discloses the extent knowledge of researchers' associated in collaborative works (Kasa, Izah, Soyemi, & Opeke, 2020) improve the quality of research by means team can achieve more than individual(Beaver, 2004; Harande, 2016). in figure 1, based on the formula for authorship evaluation introduced by (Garg & Padhi, 2001) '2339 unique authors' of 1690 research, distributed in 4 patterns i.e. single, two, multi(3/4), and mega(≥5) authors in research demonstrated by '100% stacked column'. 'Single authorship' presented least 34 (2.01%) research work, ≥6 in every year. The occurrence of 'two authorship' accounted for 380 (22.49%); the highest productivity among all patterns accounted for 867 (51.30%) for 'multi authorship' pattern. Remarkable movement in mega authorship observed

increased gradually from 15 (11.19%) research of 2009 to 61 (41.50%) research for 2018 is the positive insights among research scholars about idea, knowledge and resource sharing. Presence of collaborative work visible since the 1656 (97.99%) research performed by more than 2 authors. Existence of the multiple authorship can be defined more preciously by applying the formula of 'Degree of collaboration' (DC) 'ratio of the number of collaborative research work' recommended by (Subramanyam, 1983). DC rate replicated by 'line graph' in figure 1, reinforced existence of higher collaborative work; DC accounted '0.97' for the years 2009, 2010, 2014 & 2017; '0.98' for the years 2013 & 2015; and the highest DC rate '0.99' for the years 2011, 2012 & 2016. The overall DC rate of study period revealed '0.98' revealed the higher presence of multiple authors in research productivity.

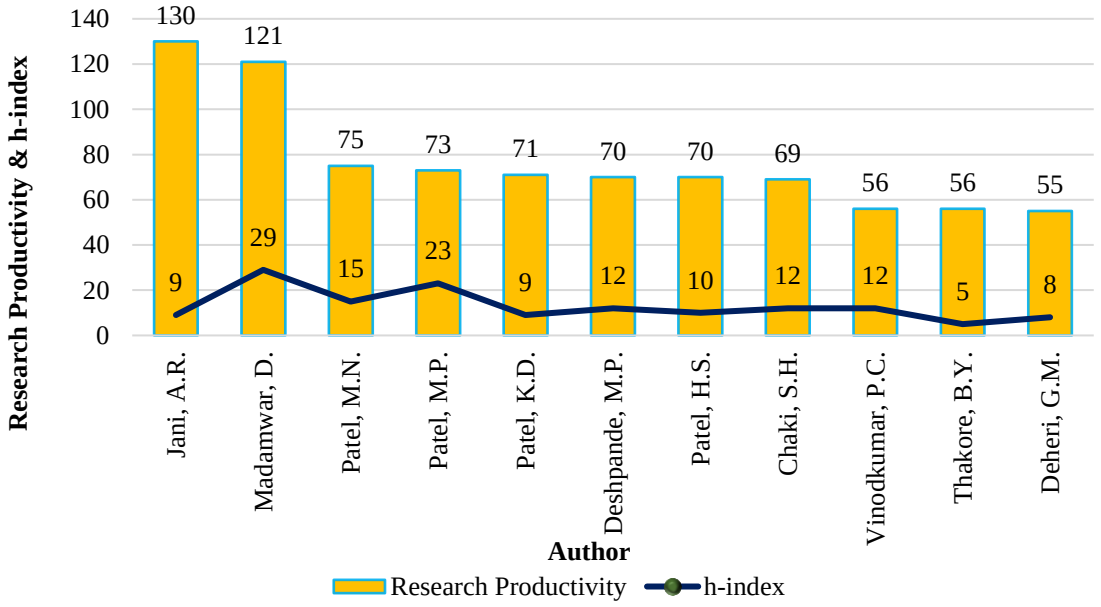
Table 2: Co-authorship index (CAI)

Year	1 author RP	CAI 1 authorship	2 author RP	CAI 2 authorship	multi Author RP	CAI multi authorship	mega Author RP	CAI mega authorship	TP
2009	4	148.38	33	109.52	82	119.28	15	46.25	134
2010	5	162.44	52	151.15	79	100.65	17	45.91	153
2011	2	52.60	34	80.01	120	123.76	33	72.15	189
2012	1	28.24	43	108.66	96	106.32	36	84.52	176
2013	4	85.70	56	107.35	109	91.58	63	112.21	232
2014	6	160.34	35	83.69	99	103.75	46	102.19	186
2015	3	98.75	35	103.08	77	99.40	36	98.51	151
2016	2	60.25	36	97.03	81	95.69	46	115.20	165
2017	4	126.64	33	93.48	64	79.46	56	147.38	157
2018	3	101.44	23	69.58	60	79.56	61	171.47	147
Total	34		380		867		409		1690

The concept of Co-authorship index (CAI) proposed by (Schubert & Braun, 1986) to examine the pattern of co-authorship calculated in the current study by applying the formula designed by (Garg & Padhi, 2001) to rationalize the collaborative authorship: Metrix of 'Garg and Padhi' for 'CAI' was widely accepted worldwide applied by various research in their study (Kumar, Dora, and Desai 2015; Bhardwaj 2014; Thavamani 2018; Kanagasundari, Kohila, and Prasannakumari 2019). CAI for single authorship alters between 28.24 (2012) to 162.44 (2010); CAI=100 specifies the country's co-authorship effort to the world average. Additionally, CAI > 100 reflects higher co-authorship effort above the average, and CAI < 100 indicates lower co-authorship effort below the average. (Guan & Ma, 2004). CAI rate

decreased for ‘two’ authored research from 109.52 for 2009 to 69.58 for 2018; likewise falling for ‘multi’ author from 119.28 for 2009 to 79.56 for 2018 outlines the rate of lower than average co-authorship effort. Remarkably the CAI for ‘mega’ authorship increase progressively from 46.25 for 2009 to 171.47 for 2018 indicated the constructive higher co-authorship effort above the average and sustenance innovative practice of the research occurrences in collaborative manners.

Figure 2: The Most productive authors (Top 10)



The most prolific authors affiliated to SPU demonstrated in figure 2 which ranked those who contributed above 50 research publications for the period of 2009-18. It measures the most productive authors who frequently published the amount of publication in a certain duration of years (Mathews 1997; Braun, Glänzel, and Schubert 2001; Zyoud et al. 2014). Various factors affecting the authors' productivity i.e. individual determination, research environment, funding opportunities, career age, and experience, etc. (Carpenter, Cone, & Sarli, 2014; Ida & Fukuzawa, 2013; Pan & Fortunato, 2015; Pezzoni, Sterzi, & Lissoni, 2012). prolific authors affiliated to the academic organization/s accounted by (Abolghassemi Fakhree & Jouyban, 2011; Abramo, D’Angelo, & Pugini, 2008; Gautam & Mishra, 2015) in the evolution of the university productivity. While ranking the authors according to counts of publication, ‘Jani, A. R.’ ranked in the top with 130 research publications received 425 citation Followed by the ‘Madamwar, D.’ with 121 publications received 2673 citation. ‘Patel, M.N.’ produced 75 publications ranked on 3rd position. Position of 6th ranked shared by two authors, ‘Deshpande, M.P’ and ‘Patel, H.S.’ published 70 research individually, similarly ‘Vinodkumar, P.C.’ an

'Thakore, B.Y.' shared the 8th position with 56 publications each. However in the observation of H-index suggested by (Hirsch, 2005), measures the productivity as well impact of research published by authors diversify the ranking of top authors and the top rank captured by 'Madamwar, D.' with 29 h-index, followed by 'Patel, M.P.' with 23 of h-index. The top ranked author 'Jani, A. R.' in counts for numbers of research publication downgraded on the 6th rank with a rate of 9 h-index.

5.3 The most preferred source of publication

Table 3: Bradford's Law distribution in research communication source

Zone	RCS	CRCS	Rate (%)	RP	CRP	Rate (%)
Zone 1	36	36	5.40	562	562	33.25
Zone 2	151	187	22.64	572	1134	33.85
Zone 3	480	667	71.96	556	1690	32.90

RCS: Research Communication Source; **CRCS**: Cumulative of Research Communication sources: **PR**: Research Publications; **CPR**: Cumulative of Research Publications

Table 4: Most productive journals (Top 10)

Rank	Journal Titles	Freq
1	AIP Conference Proceedings	113
2	Medicinal Chemistry Research	29
3	RSC Advances	27
4	Advanced Materials Research	24
5	Bioresource Technology	22
6	Int. Jr. of Polymeric Materials and Polymeric Biomaterials	19
7	Applied Organometallic Chemistry	18
8	Jr. of Nano- And Electronic Physics	17
9	Applied Biochemistry and Biotechnology	16
10	Chinese Chemical Letters	16

Law of scattering introduced Bradford (Bradford, 1934) stated "there are a very few prolific periodicals published the large numbers of research work". For any of a single discipline 1/3 resources represent the most frequently journals of that discipline designated as the core source of publication (Nash-Stewart, Kruesi, & Del Mar, 2012; Potter, 2010). Presence of Bradford's

law of distributions confirmed by the several researchers by to account the core resources for scientific production (Biglu, Biglu, & Falk, 2011; Davis, 2002; Desai, Veras, & Gosain, 2018; Yeung et al., 2020). Bradford distribution can be applied to a variety of objects, not only to the distribution of articles or citations across journals (Yatsko, 2012). In the analysis of Bradford's law of scattering with respect 1690 resources were distributed in table-3 according to their zones. In 'zone 1', 36 (5.40%) research communication sources published 562 (33.25%) research; 'Zone 2' identified for 151 (22.64%) sources contributed 572 (33.85%) research publication and the '3rd zone' contained 480 (71.96%) sources published 556 (32.90%) of total research productivity. The numbers of journals in each zone increase and citation productivity decrease simultaneously. 36 sources of publication identified as the core sources of the most favored sources of SPU authors. Based on this top 10 journal titles out of core 36 which have more than 15 articles, presented in table 4 ranked according to the numbers of research published. 'AIP Conference Proceedings' ranked on top with 113 (6.69%) publications, followed 'Medicinal Chemistry Research' with 29 publications, However the Major gap visible in the top two positions. Moreover, all the top ten productive journals related to 'applied science or pure science' discipline absence of 'social science discipline' journals revealed in the analysis. Recognized "core publications/sources" for research publications, university procure those and make available for the access to the user community.

5.4 Citation Influence of research publications

Table 5: Influence of research publications by citation received

Year	PR	CR	CCR	Loge^1(C)	Loge^2(C)	RGR (C)	Mean RGR(C)	Dt (C)	Mean Dt (C)
2009	134	2337	2337		7.76	-		-	
2010	153	1555	3892	7.76	8.27	0.51		1.36	
2011	189	1993	5885	8.27	8.68	0.41	0.29	1.68	1.74
2012	176	2070	7955	8.68	8.98	0.30		2.30	
2013	232	1828	9783	8.98	9.19	0.21		3.35	
2014	186	1772	11555	9.19	9.35	0.17		4.16	
2015	151	1506	13061	9.35	9.48	0.12		5.66	
2016	165	1013	14074	9.48	9.55	0.07	0.09	9.28	12.39
2017	157	721	14795	9.55	9.60	0.05		13.87	
2018	147	358	15153	9.60	9.63	0.02		28.98	
Total	1690	15153					0.19		7.06

PR: Published Research; CR: Citations Received; CCR: Cumulative of Citations received RGR: Relative Growth Rate; Dt: Doubling Time; (C); Citations

'Citation analysis' is the major tool of bibliometric study, consider the citations for both "from" and "to" documents (Diodato, 1994) recognized as the basic parameter and the best practice to identify the research impact. This technique of 'Citation' has been perfected by Eugene Garfield and others since the early 1960s (Garfield & Sher, 1963). It is the process to derive the series of indicators of 'impact', 'influence', and 'quality' of research work from the data (Moed, 2006). Citation received for the published research work should be referred to as the 'return of investment'. Low rate of research activities in terms of publications and citations enforce the 'policy documents needs operative strategies' for 'returns of investment' for the College, decision-makers, funders. (Obuku et al., 2017). Counting of citations has been the most widely acquired methods for evaluating the research performance of scholars (Harinarayana & Raju, 2012; Lewison, 2001; Thomas & Watkins, 1998). citation counting appreciated be the primary instrument, but not the only means of accounting Research impact scores (Oppenheim, 1997). Several studies evaluated citations as is the instrument to measure scholars' productivity (Chan, Chen, & Cheng, 2005; Heang, Yap, Lim, & Tam, 2012; Klein & Bloom, 1992; Kroc, 1984; Lawani, 1977; McKercher, 2008; Rama, 2020). Table 5 quantifying the influence of citation for SPU research published between 2009±2018. A total of 15153 citations received by the 1690 research with an average of 8.97 citations per article. The most citations2337 (15.42%) received by 134 (7.93%) publications of year 2009 followed by year 2012, received 2070 (13.66%) for 176 (10.41%) publications. Citation analysis for the chronological series indicates the decline trend, fall from 2337 (15.42%) to 358 (2.36%) however the life of publication should be a major reason for this variation. In observation of 'average per year citation' for the 'life of publications' year, 2015 ranked on top-cited by 376.5 times per year. Relative Growth Rate (RGR), and Doubling Time (Dt), suggested by (M. Mahapatra, 1985) calculated for the citations (Mahapatra 1994). Corresponding RGR (C) 'increment rate of citation per unit of time' downcast from 0.51 in 2010 to 0.02 for the year 2018. The mean RGR (C) 0.19 for 2009±2018 however the mean RGR (C) for the first five years calculated 0.29 yet overall rate decreases due 0.09 of last five years mean RGR (C). Dt (C) 'the period to citations reach to double value' moved up from 1.36 from the year 2010 to 28.98 for 2018. Mean Dt (C) 1.74 for 2009±2013 was 1 admirable then the slumped Mean Dt (C) 12.39 for 2014±2018 generates a contrary effect on the overall Mean Dt (C) calculated 7.06. measured 3.52. Analyzed 'RGR (C)' in the current study 'indicates the degressive rate

of citation' and 'Dt (C)' mounting values (negatively) for the period to reach citations double should be the matter of anxiety for SPU and individual scholars.

6. CONCLUSION

The above study findings revealed the inconsistent growth in publication productivity as well in citations received. Mean RGR (P) '0.25'; Mean Dt (P) '3.52' not much stunning and required major attention. Positive output revealed in the authorship pattern rate of DC '0.98' and the highest '51.30%' productivity for 'multi authorship'. A Total of 36 core sources of publication identified favored the most by SPU scholars for 'research communication', identified core journals related to 'applied / pure science' discipline. However, the 'frequency of publications' not only the counts leads the academic organization toward the 'research identity' even the numbers of citations received by the publication affecting the most to recognize the 'research impact' & 'research identity' of any academic organization or individuals. Average of 8.97 citations per article revealed in citation analysis; the mean RGR (C) '0.19' and Mean Dt (C) '7.06' visibly not much defendable amount of 'time to double' the citations for SPU research publications and should be the matter of anxiety for SPU and individual scholars. Citation analysis is not only the indicator to represent the 'research impact' though it appreciated as the vastly utilized indicator quantify 'research impact'. SPU has to make more effort to promote research culture, attention to developing a healthy research environment, and restructure the research policies with contemporary trends to enhances and enrich research performance of individuals and additional attention on interdisciplinary research as well for social science discipline. Recognized "core publications/sources" for research publications, university should procure and the make available for research community of the university. The present study acquired the 'Scopus index' literature to represents the most nearby research productivity for SPU. Scopus escalating the numbers of 'back-dated journals' (Beatty, 2017) in the database, moreover several national/international publications indexed in various 'indexing databases' other than the 'Scopus' are factors that can vary 'data' and 'result' of the current study; and the Scope of further research with the samplings of bibliographic datasets from various indexing databased with the use of advanced methods could be helpful to find out more attributes.

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